draft form-based code A

The Fairfax Boulevard District Code (also referred to herein as "the Code") is a legal document that regulates land-development by setting careful and coherent controls on building form—while employing more flexible parameters relative to building use. The District Code uses simple and clear graphic prescriptions and parameters for height, siting, and building elements to address the necessities for defining good public space; and broad parameters for uses within the buildings.

The standards provided in the Code were built on the foundation established in the March 2007 design charrette and the resulting Fairfax Boulevard Master Plan. The Code reflects the principles of traditional place-making and urban design. The expectation is that these standards will provide the foundation for long-term redevelopment along the corridor, and accommodate change over time. The District Code recognizes that the local economy may support and/or demand different types of uses at different times, but with a sound development and building pattern—much like the historic Old Town Fairfax district—the building life-cycle will be sustainable.

The proposed Fairfax Boulevard District is generally defined as the approximately 3.5-mile Fairfax Boulevard corridor between Fairfax Circle on the east and Jermantown Road on the west. The District is composed of three centers: Fairfax Circle, Northfax, and Kamp Washington, and the portions of Fairfax Boulevard—the East and West Connectors—in between. For specific boundaries, see the regulating plans and consult the Department of Community Development and Planning.

GUIDING PRINCIPLES

With proper urban form, a greater integration of building uses is natural and comfortable.

- Buildings are aligned and close to the street. Buildings form the space of the street.
- The street is a coherent space, with consistent building forms on both sides. This agreement of building form across the street-space contributes to a clear public space and street identity.
- Buildings oversee the street-space with active fronts. This overview of the street-space contributes to vital and safe public space.
- Property lines are physically defined by buildings, walls, or fences. Land should be clearly public or private—in public view and under surveillance or private and protected.
- Buildings are designed for towns and cities. Rather than being simply pushed closer together, as in many suburban developments, buildings must be designed for the urban situation within towns and cities. Views are directed to the street-space and interior gardens/courtyards, not into neighboring lots.
- Vehicle storage/parking, (not including on-street parking), garbage and mechanical equipment are kept away from the street-space.

INTENT

The Fairfax Boulevard District Code is designed to foster infill redevelopment in a sustainable mixed-use pattern as part of a vibrant, diverse City. These standards are intended to promote traditional town form and a healthy mix of uses in a series of Centers—Fairfax Circle, Northfax, and Kamp Washington—along the Boulevard. The Centers will have wide sidewalks and canopy shade trees at the street level, allowing for shopfronts, sidewalk cafes, and other commercial uses that are overlooked by upper story residences and offices. Creating a clear sense of identity for each Center with a clear physical connection to the surrounding neighborhoods is very important to the future of the City.

Redevelopment within the Fairfax Boulevard District shall be regulated as set forth below in order to achieve the vision set forth during the March 2007 Public Participation Charrette and as further defined in the (proposed) Fairfax Boulevard Master Plan for the corridor. The standards provide the specific means to guide the development and redevelopment of all properties in the District.

CONFLICTING PROVISIONS

Wherever there appears to be a conflict between the Fairfax Boulevard District Code and other sections of the City of Fairfax Zoning Ordinance, the requirements specifically set forth in the District Code shall prevail. For development standards not covered by the Fairfax Boulevard District Code, the other applicable sections in the City of Fairfax Zoning Ordinance shall be used as the requirement. Similarly, all development must comply with all relative Federal, State or local regulations and ordinances regarding health and safety.

HOW TO USE THIS CODE

In order to understand what the standards allows on property within the Fairfax Boulevard District there are three basic steps. The standards will explain where the building will sit on the site, the parameters for its three-dimensional form, the range of allowable uses, and the palette of materials that will cover it. (For exact dimensions specific to your property, consult with the City Architect.)

Initial Steps

1. Look at the regulating plan. Find the property in question. Note the required building line (RBL) and the parking setback line. Note the color of the fronting street-space—this determines the applicable building form standard. (See the key on the regulating plan.)
2. Find the appropriate building form standard (BFS) pages. The BFS will tell you the basic parameters for building on this site in terms of height, siting, elements, and use.
3. Look at the Architectural Standards section to understand the parameters for the external building materials and architectural configurations.

ADDITIONAL INFORMATION

Additional information regarding the street-space is located in Sec. 4.0 Streetspace Standards and Sec. 5.0 Street Sections. These sections will show the general parameters for the character of the street-space including vehicular traffic lane widths, curb radii, sidewalk and tree planting area dimensions, and on-street parking configurations.

COMPONENTS OF THE CODE

The primary components of the District Code are: the regulating plans, the building form standards, the Streetspace Standards, Street Sections, Parking Standards, Architectural Standards, Administration, and Definitions.

The Regulating Plan

Building on the public participation charrette and Fairfax Boulevard Master Plan, a regulating plan has been produced for the Fairfax Boulevard District. The regulating plan provides standards for the disposition of each property or lot and illustrates how each relates to the adjacent properties and street-space. It is the coding key for the Fairfax Boulevard District that provides specific information on permitted development for each parcel within the district.

The regulating plan identifies the building form standards for all building sites within the Fairfax Boulevard District. It shows how each lot relates to public spaces (street-space, civic greens, pedestrian pathways, etc.) and the surrounding neighborhoods. There may be additional recommendations/regulations for special locations as identified on the regulating plan. A fully scalable regulating plan is available for review at the Department of Community Development and Planning.

Building Form Standards

The intent of the building form standards is to shape the public space—its specific physical and functional character—for the Fairfax Boulevard District through controls on building form in order to frame the street-space. They aim for the minimum level of control necessary to meet that goal. The building form standards establish basic parameters governing building form, including the envelope for building placement (in three dimensions) and certain permitted/required building elements, such as shopfronts, balconies, and street walls. The building form standards establish both the boundaries within which things may be done and specific things that must be done. The applicable standard for a building is determined by its street frontage, as identified on the regulating plan. This produces a coherent street-space and allows the building greater latitude behind its street facade.

The Streetspace Standards

The Streetspace Standards are intended to define coherent street-space and to assist owners and builders with understanding the relationship between the public space of the Fairfax Boulevard District and their own building/lot. These standards set the parameters for the placement of street trees and other amenities or appurtenances (e.g., benches, signs, street lights, etc.) on or near each building site. They also describe the general physical characteristics of a street-space to establish an environment that encourages and facilitates pedestrian activity.

The Street Sections

The Street Sections illustrate typical configurations for streets within the Fairfax Boulevard District. The Sections address vehicular traffic lane widths, curb radii, sidewalk and tree planting area dimensions, and on-street parking configurations. They also provide a comparative pedestrian crossing distance as a gauge of pedestrian comfort. (The City will configure and adjust these as necessary for specific conditions.)

Streets must balance the needs of all forms of traffic—auto, transit, bicycle and pedestrian—to maximize mobility and convenience for all the citizens of the City of Fairfax and all users of the Fairfax Boulevard District. While all streets will appropriately balance pedestrian and automobile needs, their character will vary with their location. Some streets will carry a large volume of traffic and provide a more active and intense urban pedestrian experience while others will provide a less active and more intimately scaled street-space.

Parking Standards

The goal of the Parking Standards is to promote a "park once" environment that will enable people to conveniently park and access a variety of commercial, residential, and civic enterprises in pedestrian-friendly environments by encouraging shared park-

ing and reducing diffuse, inefficient, single-purpose reserved parking.

Architectural Standards

The goal of the Architectural Standards is to promote a coherent and pleasing architectural character that is complementary to the best local traditions. The standards govern a building's architectural elements regardless of its building form standard and set the parameters for allowable materials, configurations, and construction techniques. Equivalent or better products than those specified are always encouraged and may be submitted to the City Architect for approval.

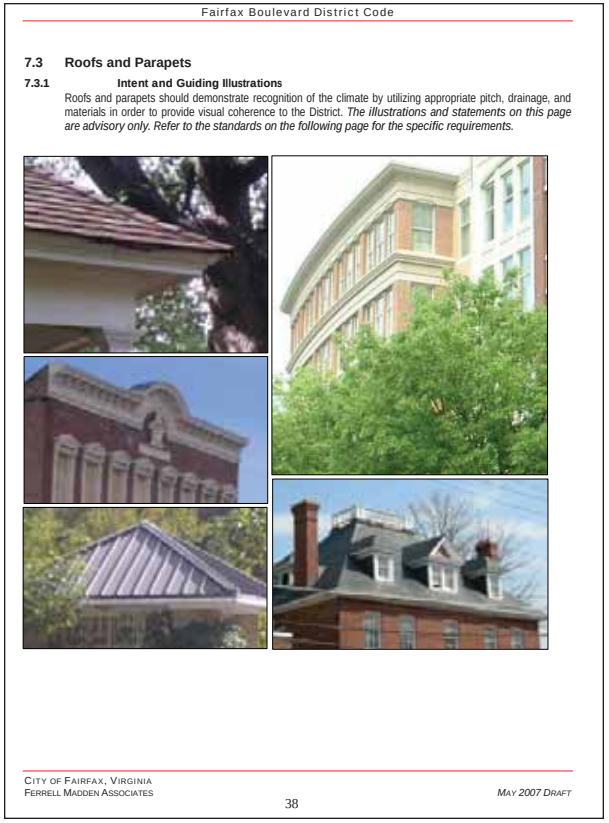
Administration

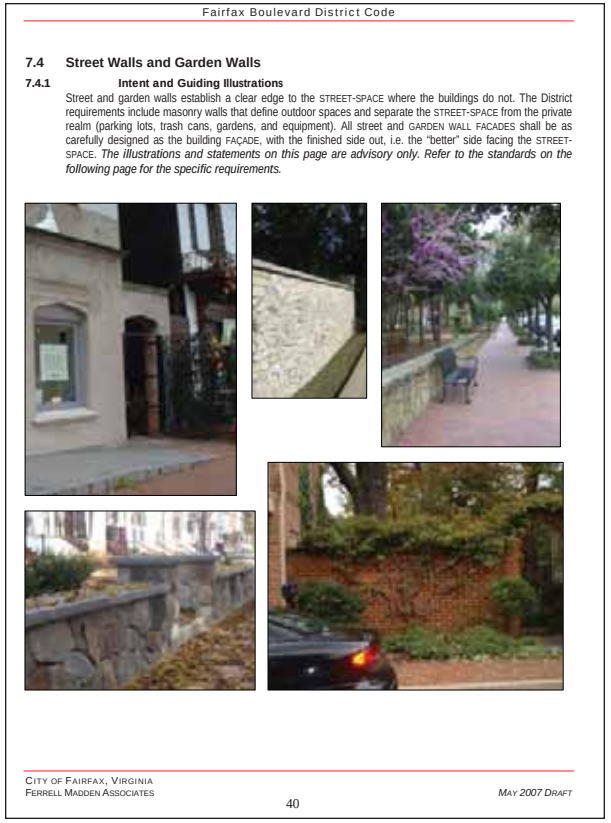
The Administration section establishes any unique processes and procedures that may be necessary to implement this Code, either beyond or in replacement of those established in the pre-existing City of Fairfax Zoning Ordinance.

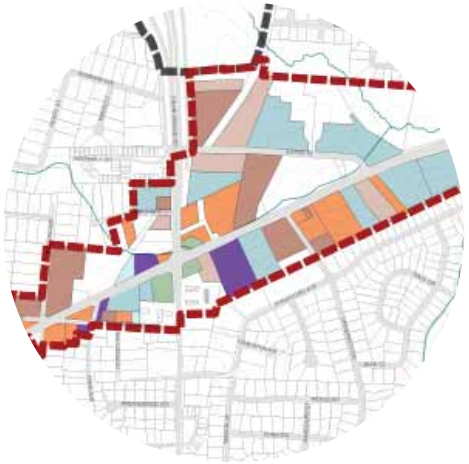
Definitions

Some words used in this Code are used in a more specific way than that found in common usage, and have been defined herein. Wherever a word is in small capital format, consult the Definitions (Sec. 9.0) for the specific meaning. Words used in the Fairfax Boulevard District Code, but not defined by the Fairfax Boulevard District Code, which are defined in the City of Fairfax Zoning Ordinance, shall have the meanings set forth therein.

A complete version of the Draft Form-Based Code is available at the Department of Community Development and Planning.







using GIS for economic development B

Geographic Information Systems (GIS) is currently used in many municipalities to note and track infrastructure, population characteristics, planning and zoning changes, vacant land and physical characteristics needed for engineering and planning purposes. These uses reflect the original development of GIS as a land-planning tool to replace time-consuming overlays or sieve mapping.

GIS is rarely used for economic analysis of real estate or market trends, though smart cities are waking up to the power that GIS can provide in analyzing this type of data. Cities that desire a redeveloped downtown or a more vital urban economy, should collect information on metrics that can help them formulate strategies for reaching their desired goals. Metrics such as vacant land inventory; square feet of buildings and intensity of development; square feet of commercial, residential and other uses with land and improvement values; units of residential (not the same as square feet); retail sales by category; office uses by category; can help a city refine its economic development strategy. The point here is that real estate is valued and used according to its location and since GIS is created specifically to show locational data it has the potential to be among the most powerful tools in a city's attempt to understand its own market opportunities and potential for development.

When a city does not include valuable economic data in its GIS system, tedious, expensive work is necessary. As an example, retail sales need to be correlated with square feet of retail space to yield a meaningful analysis of local retail performance. If the data is not in the database, someone has to go out and collect it by walking through every retail establishment in town. The same task would take only a few minutes with a more complete GIS database.

Since cities usually have the data necessary or the mechanisms in place to collect it, they should include it in their databases so that they can more efficiently use their time and resources to achieving community goals and create vital downtowns and neighborhoods.

WHAT ARE THE BASIC TASKS OF GIS FOR ECONOMIC DEVELOPMENT?

GIS can offer the ability to spot trends, economic performance, program effectiveness, building obsolescence and a host of factors important in determining when, how, where to change policy or offer assistance through public efforts to accelerate positive change. It can also highlight negative trends and allow the city to act in a more pro-active or pre-emptive way to forestall economic deterioration. And it can target the places where change or opportunity exists exactly, lot by lot.

Typical tasks performed by GIS:

- Demographic Analysis
- Housing Analysis
- Retail Sector Health
- Office Sector Health
- Industrial Sector Health
- Tracking Under-use and Redevelopment Potential
- Building Obsolescence
- Impact of Redevelopment
- Impact of Policy, Planning Changes
- Tracking Economic Indicators
- Economic impact of zoning/land-uses on adjacent zones/uses

HOW DO YOU GET THE INFORMATION?

Most cities already have the data they need, it is just dispersed between various departments. An effort should be made to combine and assimilate data from the following offices to generate a more effective database.

Planning Department

The planning department has a good start on the data in its own office:

- Zoning boundaries
- Tax lot zoning
- Current Land Use
- Any overlays or long-range plans applying to the tax lot
- Special taxing, incentive or other districts applying to the tax lot
- Results of approvals that fit into data categories such as changes in zoning, numeric enumeration of the building program approved (units, square feet of retail, etc.), conditional use changes, etc.
- Building footprints - These can be determined from aerial photography and can gauge site coverage and building floors when correlated with assessor's data on total building square feet.

Business Licensing

Information about business licenses is useful to understand what types and how many businesses are in town, as well as indications of business health. Useful information to be collected includes:

- Leasing information – square feet, ground floor or upper floor lease, lease rate
- Categorize business to allow meaningful differentiation between common types such as those seen in consumer spending reports
- Sales Information – upon renewal of business license get annual gross sales to correlate with square feet leased

County Assessor

This office typically has data on land and improvement market value, building square feet, lot square

feet, land use, public or private ownership (the actual names of private owners are not important for the purposes of collating economic data), owner location (which is useful to know how many absentee landlords there are).

Recorder's Office
Has data on property: age of structure (year built), last property sale date and amount paid.

Permitting Office
The building and permitting office has data on numbers of units created or demolished by address (residential) or square feet created or demolished (commercial), and last time of building renovation and the extent or cost of renovation.

Post Office
Correlating postal addresses to tax parcels allow the estimation of the number of units on any lot.

Utility Records
Like the postal information, address matching of residential units to apartment buildings from utility records may allow an estimate of number of residential units.

On-going Data Collection by the City
It is useful to measure progress and track issues by conducting an annual survey of building owners that covers:

- Vacancy
- Average rental rate per square foot
- Expenses per square foot (in many places this is done by BOMA)
- In the case of housing whether the units are dedicated to a particular demographic group such as seniors students, low-income etc.

Real Estate Multiple Listing Information
The city should have access to this data that shows the sales pricing for real estate and allows trending over multiple years to understand where change in markets is taking place.

Assemble the Information
The tax lot is the most basic unit of analysis. All information, whether held in a single or multiple database layers should have an id number (usually the tax lot id or pin number) that can be used to identify the tax lot and correlate the different characteristics for each tax lot.

WHAT CAN BE DONE WITH THE INFORMATION?
Once the data is assembled in a GIS database, it becomes a powerful tool for:
Redevelopment
The GIS system can highlight area of low value that are ripe for redevelopment when property values are changing by highlighting the differences between existing assessed values and new project values in areas that are similar or adjoining.

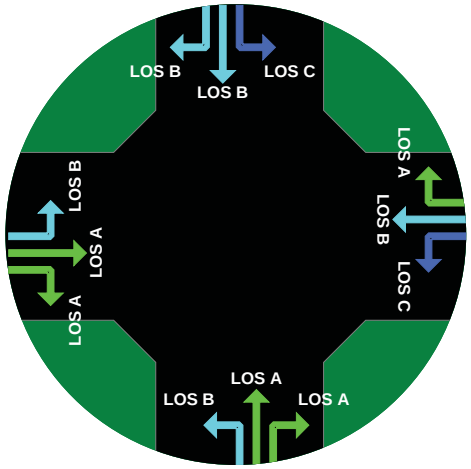
Downtown
GIS used for economic development can correlate sales per square foot to specific properties and compare it to other areas, indicating the need for improvements or charting positive change. This is information retailers are very interested in and can use to help their decision making process. It can also show the relative vitality of the office space market and alert investors to opportunities for the renovation of office space in older buildings. Moreover, lease rates can be charted to gauge the feasibility of new construction.

Neighborhood Planning
GIS that is used to chart sales values can alert the city to downward trends in property values, and can also be used to alert appraisers and lenders to upward changes that can change the basis for appraisal and thus assist in obtaining financing for rehabilitation. In this way, the use of GIS can help revitalize areas without resorting to wholesale gentrification.

Infill Development
Infill development can be assisted by GIS through the identification of properties and city follow-up to the property owners to alert them of the opportunity. Many property owners may not have the resources to understand that they have properties that with potential development value and GIS can help city efforts while offering owners valuable opportunities.

Employment Trends and Building Type and Age
GIS can reveal building use by age. When this analysis was performed for Kirkland, Washington it was discovered that older building were not being used by the industries targeted by the zoning. In other words, the zoning may dictate a building type and use, but if the businesses don't want it they don't use it—and the city didn't know. The use of GIS can help the city adjust its requirements so that they fit the current market.

Employment Trends and Zoning Obsolescence
Sometimes zoning dictates places that people just aren't interested in anymore because the economics no longer work. GIS can reveal these areas through a charting of declining lease rates and changing uses. By keeping up to date, the GIS system can alert the city to situations that need attention redirecting the zoning to more productive uses.



detailed synchro and sidra analysis C

SYNCHRO ANALYSIS

Fairfax Blvd. and Main Street Level of Service

May 8, 2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	3433	3532	0	3433	3532	0	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.065			0.172		
Satd. Flow (perm)	3433	3532	0	3433	3532	0	121	3539	1583	320	3539	1583
Satd. Flow (RTOR)												69
Volume (vph)	416	1012	12	1060	1124	12	36	744	548	60	980	720
Lane Group Flow (vph)	452	1113	0	1152	1235	0	39	809	596	65	1065	783
Turn Type	Prot			Prot			pm+pt		pt+ov	pm+pt		pt+ov
Protected Phases	5	2		1	6		3	8	8 1	7	4	4 5
Permitted Phases							8			4		
Total Split (s)	45.0	45.0	0.0	77.0	77.0	0.0	15.0	83.0	160.0	15.0	83.0	128.0
Act Effct Green (s)	41.0	41.0		74.6	74.6		88.4	79.0	153.6	89.2	81.6	126.6
Actuated g/C Ratio	0.19	0.19		0.34	0.34		0.40	0.36	0.70	0.41	0.37	0.58
v/c Ratio	0.71	1.69		0.99	1.03		0.33	0.64	0.54	0.34	0.81	0.83
Control Delay	79.9	358.8		91.9	100.4		69.1	54.3	8.3	51.7	72.3	47.8
Queue Delay	0.0	89.1		103.5	103.7		0.0	6.9	0.3	0.5	0.0	0.0
Total Delay	79.9	447.9		195.3	204.0		69.1	61.1	8.6	52.2	72.3	47.8
LOS	E	F		F	F		E	E	A	D	E	D
Approach Delay		341.6			199.8			39.7			61.6	
Approach LOS		F			F			D			E	
Queue Length 50th (ft)	288	~1232		836	~994		39	617	167	50	752	533
Queue Length 95th (ft)	369	#1375		#1032	#1153		62	457	234	m60	741	659
Internal Link Dist (ft)		1392			296			342			1046	
Turn Bay Length (ft)	340						100			200		400
Base Capacity (vph)	640	658		1164	1198		132	1271	1105	204	1313	940
Starvation Cap Reductn	0	0		243	230		0	410	99	0	0	0
Spillback Cap Reductn	0	69		0	0		0	0	132	27	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.71	1.89		1.25	1.28		0.30	0.94	0.61	0.37	0.81	0.83

Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 45 (20%), Referenced to phase 1:WBL and 6:WBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.69
Intersection Signal Delay: 162.4 Intersection LOS: F
Intersection Capacity Utilization 104.9% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Fairfax Boulevard and Chain Bridge Road Level of Service

May 8, 2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	3433	5040	0	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	5040	0	1770	5085	1583	1770	3539	1583	1770	3539	1583
Satd. Flow (RTOR)		6				310			64			99
Volume (vph)	388	1523	92	134	1617	354	125	1032	172	240	1127	250
Lane Group Flow (vph)	422	1755	0	146	1758	385	136	1122	187	261	1225	272
Turn Type	Prot			Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases						2			4			8
Total Split (s)	25.0	118.0	0.0	27.0	120.0	120.0	20.0	47.0	47.0	28.0	55.0	55.0
Act Effct Green (s)	21.0	115.3		21.7	116.0	116.0	16.0	43.0	43.0	24.0	51.0	51.0
Actuated g/C Ratio	0.10	0.52		0.10	0.53	0.53	0.07	0.20	0.20	0.11	0.23	0.23
v/c Ratio	1.29	0.66		0.83	0.66	0.39	1.05	1.62	0.52	1.35	1.49	0.61
Control Delay	220.4	39.8		130.7	33.5	7.6	184.5	334.1	56.9	258.7	269.8	40.2
Queue Delay	0.0	0.0		0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	220.4	39.8		130.7	33.7	7.6	184.5	334.1	56.9	258.7	269.8	40.2
LOS	F	D		F	C	A	F	F	E	F	F	D
Approach Delay		74.8			35.5			284.2			232.7	
Approach LOS		E			D			F			F	
Queue Length 50th (ft)	~399	682		204	525	76	~215	~1225	163	~482	~1262	113
Queue Length 95th (ft)	#524	728		m258	475	m107	#386	#1366	259	m#696	#1404	m210
Internal Link Dist (ft)		798			1037			554			982	
Turn Bay Length (ft)	600			200		350	200		225	300		
Base Capacity (vph)	328	2644		185	2681	981	129	692	361	193	820	443
Starvation Cap Reductn	0	0		0	311	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.66		0.79	0.74	0.39	1.05	1.62	0.52	1.35	1.49	0.61

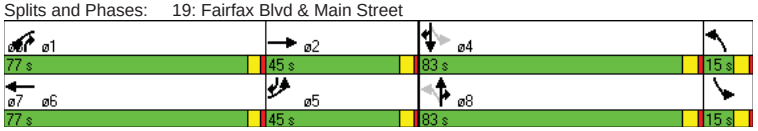
Intersection Summary

Cycle Length: 220
Actuated Cycle Length: 220
Offset: 162 (74%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.62
Intersection Signal Delay: 138.7 Intersection LOS: F
Intersection Capacity Utilization 97.5% ICU Level of Service F
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Fairfax Blvd. and Main Street Level of Service

May 8, 2007

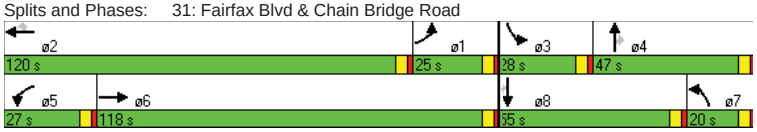
Splits and Phases: 19: Fairfax Blvd & Main Street



Fairfax Boulevard and Chain Bridge Road Level of Service

May 8, 2007

Splits and Phases: 31: Fairfax Blvd & Chain Bridge Road



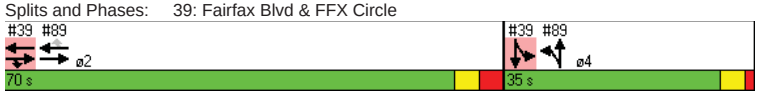
Fairfax Circle - Western Intersection Level of Service

May 8, 2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3539	1583	0	3539	0	0	0	0	0	3529	1583
Flt Permitted											0.997	
Satd. Flow (perm)	0	3539	1583	0	3539	0	0	0	0	0	3529	1583
Satd. Flow (RTOR)												364
Volume (vph)	0	1571	406	0	1739	0	0	0	0	50	820	750
Lane Group Flow (vph)	0	1708	441	0	1890	0	0	0	0	0	945	815
Turn Type			Prot							Split		Free
Protected Phases		2	2		2					4	4	
Permitted Phases												Free
Total Split (s)	0.0	70.0	70.0	0.0	70.0	0.0	0.0	0.0	0.0	35.0	35.0	0.0
Act Effct Green (s)		66.0	66.0		66.0						31.0	105.0
Actuated g/C Ratio		0.63	0.63		0.63						0.30	1.00
v/c Ratio		0.77	0.44		0.85						0.91	0.51
Control Delay		17.0	11.8		4.7						48.1	1.2
Queue Delay		0.0	0.0		0.0						0.0	0.0
Total Delay		17.0	11.8		4.7						48.1	1.2
LOS		B	B		A						D	A
Approach Delay		15.9			4.7						26.4	
Approach LOS		B			A						C	
Queue Length 50th (ft)		398	140		73						316	0
Queue Length 95th (ft)		492	209		65						363	0
Internal Link Dist (ft)		1502			176			45			192	
Turn Bay Length (ft)												
Base Capacity (vph)		2225	995		2225						1042	1583
Starvation Cap Reductn		0	0		1						0	0
Spillback Cap Reductn		0	0		0						0	0
Storage Cap Reductn		0	0		0						0	0
Reduced v/c Ratio		0.77	0.44		0.85						0.91	0.51

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 50 (48%), Referenced to phase 2:EBWB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 15.4	Intersection LOS: B
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 39: Fairfax Blvd & FFX Circle



Fairfax Circle - Eastern Intersection Level of Service

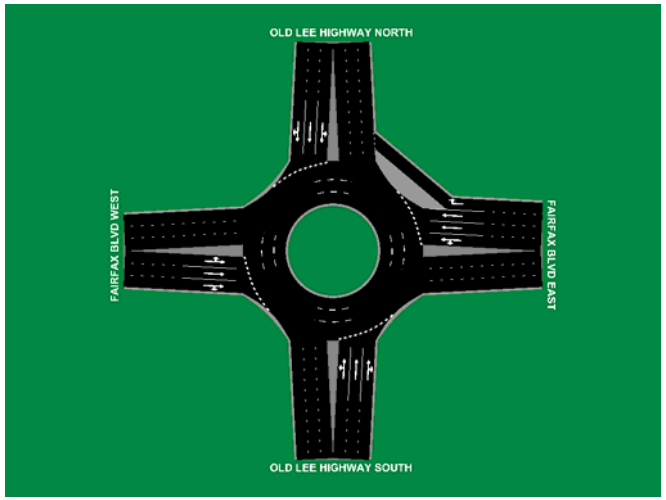
May 8, 2007

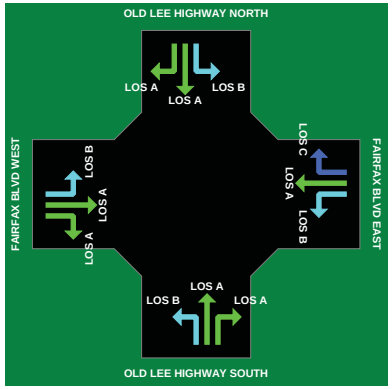
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	0	3539	0	0	3539	1583	0	3536	1583	0	0	0
Flt Permitted								0.999				
Satd. Flow (perm)	0	3539	0	0	3539	1583	0	3536	1583	0	0	0
Satd. Flow (RTOR)									48			
Volume (vph)	0	1621	0	0	1720	80	19	729	50	0	0	0
Lane Group Flow (vph)	0	1762	0	0	1870	87	0	813	54	0	0	0
Turn Type						Perm	Split		Free			
Protected Phases		2			2		4	4				
Permitted Phases						2			Free			
Total Split (s)	0.0	70.0	0.0	0.0	70.0	70.0	35.0	35.0	0.0	0.0	0.0	0.0
Act Effct Green (s)		66.0			66.0	66.0		31.0	105.0			
Actuated g/C Ratio		0.63			0.63	0.63		0.30	1.00			
v/c Ratio		0.79			0.84	0.09		0.78	0.03			
Control Delay		4.3			15.3	7.1		39.2	0.0			
Queue Delay		0.0			0.1	0.0		0.0	0.0			
Total Delay		4.3			15.4	7.1		39.2	0.0			
LOS		A			B	A		D	A			
Approach Delay		4.3			15.0			36.7				
Approach LOS		A			B			D				
Queue Length 50th (ft)		51			542	36		256	0			
Queue Length 95th (ft)		52			m441	m36		m298	m0			
Internal Link Dist (ft)		176			1252			171			36	
Turn Bay Length (ft)						200						
Base Capacity (vph)		2225			2225	995		1044	1583			
Starvation Cap Reductn		1			0	0		0	0			
Spillback Cap Reductn		0			13	0		0	0			
Storage Cap Reductn		0			0	0		0	0			
Reduced v/c Ratio		0.79			0.85	0.09		0.78	0.03			

Intersection Summary	
Cycle Length: 105	
Actuated Cycle Length: 105	
Offset: 50 (48%), Referenced to phase 2:EBWB, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 15.0	Intersection LOS: B
Intersection Capacity Utilization 78.9%	ICU Level of Service D
Analysis Period (min) 15	
m Volume for 95th percentile queue is metered by upstream signal.	

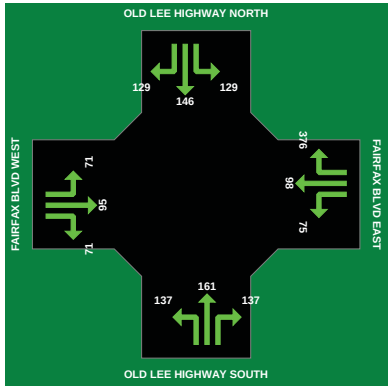
Splits and Phases: 89: Fairfax Blvd & FFX Circle

Fairfax Circle
(Fairfax Boulevard/Old Lee Highway)





Levels-of-service



95th Percentile Queues

Movement Summary

FAIRFAX CIRCLE PM PEAK

Subtitle

Roundabout

Vehicle Movements

Mov No	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
OLD LEE HIGHWAY SOUTH										
32	L	60	1.7	0.625	16.4	LOS B	137	0.80	0.97	28.9
31	T	1720	2.0	0.625	7.7	LOS A	161	0.81	0.75	31.9
33	R	20	4.8	0.618	8.4	LOS A	137	0.80	0.81	31.7
Approach		**1801**	**2.0**	**0.625**	**8.0**	**LOS A**	**161**	**0.81**	**0.76**	**31.8**
FAIRFAX BLVD EAST										
22	L	50	2.0	0.446	16.6	LOS B	75	0.82	0.95	28.8
21	T	820	2.0	0.445	8.2	LOS A	98	0.86	0.76	31.7
23	R	750	2.0	0.917	20.8	LOS C	376	1.00	1.39	25.8
Approach		**1620**	**2.0**	**0.917**	**14.3**	**LOS B**	**376**	**0.93**	**1.06**	**28.6**
OLD LEE HIGHWAY NORTH										
42	L	300	2.0	0.634	15.2	LOS B	129	0.76	0.89	29.0
41	T	1570	2.0	0.634	6.4	LOS A	146	0.76	0.61	32.2
43	R	100	2.0	0.633	7.2	LOS A	129	0.76	0.69	31.9
Approach		**1970**	**2.0**	**0.634**	**7.8**	**LOS A**	**146**	**0.76**	**0.66**	**31.6**
FAIRFAX BLVD WEST										
12	L	19	5.0	0.426	16.9	LOS B	71	0.83	0.96	28.8
11	T	729	2.1	0.423	8.5	LOS A	95	0.88	0.78	31.6
13	R	50	2.0	0.424	8.8	LOS A	71	0.83	0.81	31.6
Approach		**799**	**2.1**	**0.423**	**8.7**	**LOS A**	**95**	**0.87**	**0.78**	**31.5**
All Vehicles		**6190**	**2.0**	**0.917**	**9.7**	**LOS A**	**376**	**0.83**	**0.81**	**30.8**

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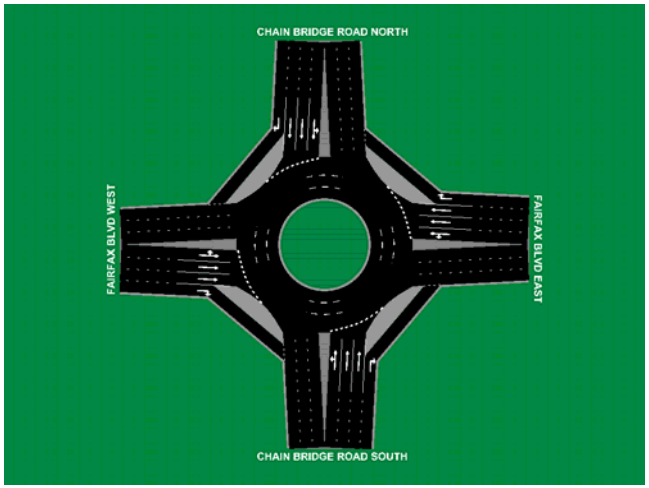
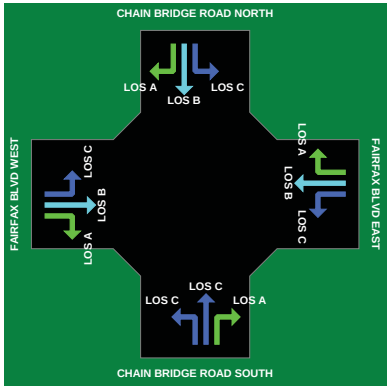
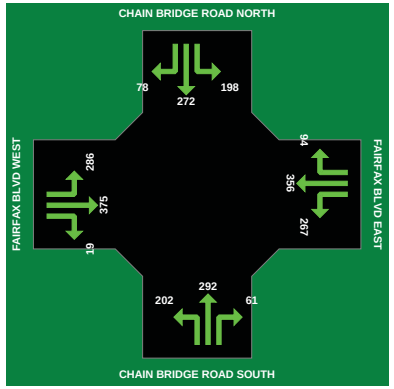
Fairfax Boulevard/Chain Bridge Road





Levels-of-service



95th Percentile Queues

Movement Summary

ROUTE 50 (FAIRFAX BLVD)/ROUTE 123(CHAIN BRIDGE RD) PM PEAK

TWO LANE RBT

Roundabout

Vehicle Movements

Mov No	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
CHAIN BRIDGE ROAD SOUTH										
32	L	125	2.4	1.212	128.1	LOS F	1089	1.00	2.57	9.8
31	T	1032	2.0	1.211	117.7	LOS F	1496	1.00	2.81	9.8
33	R	172	1.7	1.211	117.6	LOS F	1496	1.00	3.05	9.7
Approach		**1330**	**2.0**	**1.212**	**118.7**	**LOS F**	**1496**	**1.00**	**2.82**	**9.8**
FAIRFAX BLVD EAST										
22	L	134	2.2	1.558	273.8	LOS F	2860	1.00	4.46	5.3
21	T	1617	2.0	1.556	264.3	LOS F	3880	1.00	4.87	5.0
23	R	354	2.0	1.559	264.5	LOS F	3880	1.00	5.32	5.0
Approach		**2105**	**2.0**	**1.557**	**265.0**	**LOS F**	**3880**	**1.00**	**4.92**	**5.0**
CHAIN BRIDGE ROAD NORTH										
42	L	240	2.1	1.206	119.3	LOS F	1255	1.00	2.82	10.4
41	T	1127	2.0	1.207	109.3	LOS F	1655	1.00	3.06	10.3
43	R	250	2.0	1.208	109.5	LOS F	1655	1.00	3.25	10.2
Approach		**1617**	**2.0**	**1.207**	**110.8**	**LOS F**	**1655**	**1.00**	**3.05**	**10.3**
FAIRFAX BLVD WEST										
12	L	388	2.1	1.492	242.9	LOS F	2520	1.00	4.23	5.9
11	T	1523	2.0	1.492	233.2	LOS F	3408	1.00	4.76	5.6
13	R	92	2.2	1.484	233.9	LOS F	3408	1.00	5.17	5.5
Approach		**2003**	**2.0**	**1.491**	**235.1**	**LOS F**	**3408**	**1.00**	**4.68**	**5.6**
All Vehicles		**7055**	**2.0**	**1.559**	**193.6**	**LOS F**	**3880**	**1.00**	**4.03**	**6.6**

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Movement Summary

ROUTE 50 (FAIRFAX BLVD)/ROUTE 123(CHAIN BRIDGE RD) PM PEAK

TWO LANE RBT with two right turn lanes

Roundabout

Vehicle Movements

Mov No	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
CHAIN BRIDGE ROAD SOUTH										
32	L	125	2.4	1.518	268.7	LOS F	1780	1.00	3.28	5.4
31	T	1032	2.0	1.527	258.4	LOS F	2558	1.00	3.70	5.1
33	R	172	1.7	1.522	258.4	LOS F	2558	1.00	3.98	5.1
Approach		**1330**	**2.0**	**1.527**	**259.4**	**LOS F**	**2558**	**1.00**	**3.70**	**5.1**
FAIRFAX BLVD EAST										
22	L	134	2.2	1.186	110.8	LOS F	1314	1.00	2.81	10.9
21	T	1617	2.0	1.182	100.7	LOS F	1666	1.00	3.01	11.0
23	R	354	2.0	0.392	8.3	LOS A	83	0.81	0.71	31.3
Approach		**2105**	**2.0**	**1.182**	**85.8**	**LOS F**	**1666**	**0.97**	**2.61**	**12.3**
CHAIN BRIDGE ROAD NORTH										
42	L	240	2.1	1.611	303.1	LOS F	2320	1.00	3.84	4.8
41	T	1127	2.0	1.615	293.2	LOS F	3273	1.00	4.35	4.6
43	R	250	2.0	1.613	293.5	LOS F	3273	1.00	4.65	4.5
Approach		**1617**	**2.0**	**1.615**	**294.7**	**LOS F**	**3273**	**1.00**	**4.32**	**4.6**
FAIRFAX BLVD WEST										
12	L	388	2.1	1.190	109.4	LOS F	1416	1.00	2.94	11.0
11	T	1523	2.0	1.189	99.3	LOS F	1771	1.00	3.17	11.1
13	R	92	2.2	0.089	6.8	LOS A	16	0.64	0.57	32.0
Approach		**2003**	**2.0**	**1.189**	**97.0**	**LOS F**	**1771**	**0.98**	**3.01**	**11.4**
All Vehicles		**7055**	**2.0**	**1.615**	**169.6**	**LOS F**	**3273**	**0.99**	**3.32**	**7.4**

Movement Summary

ROUTE 50 (FAIRFAX BLVD)/ROUTE 123(CHAIN BRIDGE RD) PM PEAK

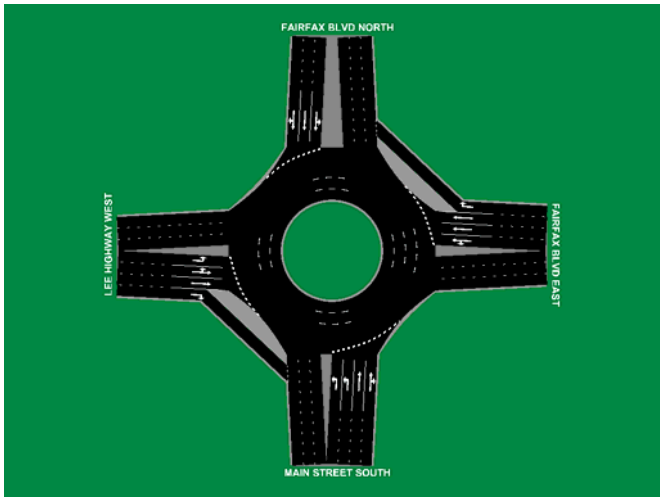
Subtitle

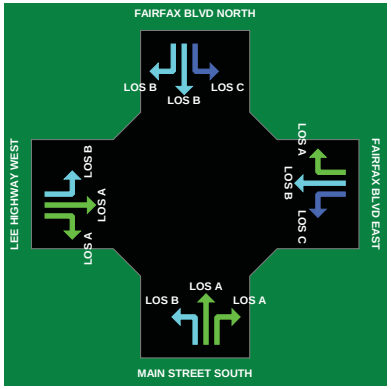
Roundabout

Vehicle Movements

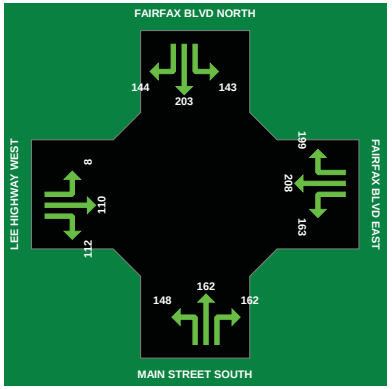
Mov No	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
CHAIN BRIDGE ROAD SOUTH										
32	L	125	2.4	0.824	30.5	LOS C	202	0.96	1.20	23.7
31	T	1032	2.0	0.826	23.8	LOS C	292	0.98	1.24	24.9
33	R	172	1.7	0.239	9.0	LOS A	61	1.00	0.81	30.9
Approach		**1330**	**2.0**	**0.826**	**22.5**	**LOS C**	**292**	**0.98**	**1.18**	**25.4**
FAIRFAX BLVD EAST										
22	L	134	2.2	0.870	26.8	LOS C	267	0.97	1.26	24.9
21	T	1617	2.0	0.869	18.7	LOS B	356	0.98	1.29	27.1
23	R	354	2.0	0.401	7.5	LOS A	94	0.91	0.69	31.3
Approach		**2105**	**2.0**	**0.869**	**17.4**	**LOS B**	**356**	**0.97**	**1.19**	**27.5**
CHAIN BRIDGE ROAD NORTH										
42	L	240	2.1	0.830	25.3	LOS C	198	0.95	1.16	25.5
41	T	1127	2.0	0.831	17.8	LOS B	272	0.97	1.19	27.6
43	R	250	2.0	0.346	8.4	LOS A	78	0.96	0.75	31.1
Approach		**1617**	**2.0**	**0.831**	**17.4**	**LOS B**	**272**	**0.97**	**1.12**	**27.6**
FAIRFAX BLVD WEST										
12	L	388	2.1	0.919	26.6	LOS C	286	0.97	1.28	25.0
11	T	1523	2.0	0.919	18.5	LOS B	375	0.98	1.31	27.2
13	R	92	2.2	0.092	6.2	LOS A	19	0.79	0.55	31.9
Approach		**2003**	**2.0**	**0.918**	**19.5**	**LOS B**	**375**	**0.97**	**1.27**	**26.8**
All Vehicles		**7055**	**2.0**	**0.919**	**19.0**	**LOS B**	**375**	**0.97**	**1.19**	**26.9**

Fairfax Boulevard/Lee Highway





Levels-of-service



95th Percentile Queues

Movement Summary

ROUTE 50(FAIRFAX BLVD)/LEE HIGHWAY PM PEAK

3 LANE RBT WITH RT LANES EAST AND WEST WITH DUAL LEFT TURN LANES SOUTH LEG

Roundabout

Vehicle Movements

Mov No	Turn	Dem Flow (veh/h)	%HV	Deg of Satn (v/c)	Aver Delay (sec)	Level of Service	95% Back of Queue (ft)	Prop. Queued	Eff. Stop Rate	Aver Speed (mph)
MAIN STREET SOUTH										
32	L	1060	2.0	0.597	17.5	LOS B	148	0.86	1.04	28.7
31	T	1124	2.0	0.519	8.0	LOS A	162	0.90	0.76	31.5
33	R	12	7.7	0.520	8.5	LOS A	162	0.95	0.79	31.0
Approach		**2197**	**2.0**	**0.597**	**12.6**	**LOS B**	**162**	**0.88**	**0.89**	**30.0**
FAIRFAX BLVD EAST										
22	L	60	1.7	0.811	26.9	LOS C	163	0.95	1.14	24.9
21	T	980	2.0	0.809	18.5	LOS B	208	0.96	1.15	27.2
23	R	720	1.9	0.682	8.5	LOS A	199	0.93	0.85	31.3
Approach		**1760**	**2.0**	**0.809**	**14.7**	**LOS B**	**208**	**0.95**	**1.03**	**28.6**
FAIRFAX BLVD NORTH										
42	L	416	1.9	0.686	21.2	LOS C	143	0.88	1.10	27.0
41	T	1012	2.0	0.687	13.4	LOS B	203	0.93	1.12	29.8
43	R	10	9.1	0.688	13.2	LOS B	144	0.88	1.06	29.7
Approach		**1439**	**2.0**	**0.687**	**15.7**	**LOS B**	**203**	**0.91**	**1.11**	**28.9**
LEE HIGHWAY WEST										
12	L	36	2.8	0.046	14.8	LOS B	8	0.75	0.81	29.1
11	T	744	2.0	0.491	7.7	LOS A	110	0.86	0.71	31.7
13	R	548	2.0	0.469	6.3	LOS A	112	0.84	0.59	31.6
Approach		**1328**	**2.0**	**0.492**	**7.3**	**LOS A**	**112**	**0.85**	**0.66**	**31.6**
All Vehicles		**6724**	**2.0**	**0.811**	**12.8**	**LOS B**	**208**	**0.90**	**0.93**	**29.7**

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